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The chair was taken by Dr. McMurtrie at 8.15, and, after routine business had been disposed of, the reading of papers was then taken up as follows:

'Note on an Improved Specific Gravity Bottle for Liquids,' by Dr. E. R. Squibb; 'Note on the Determination of Caffeine,' by G. L. Spencer; 'Variations in the Composition of Commercial Red Lead,' by Durand Woodman; 'The Methods for Determination of Tannin,' by J. H. Yocum; 'Modern Metallurgy of Copper,' by J. B. F. Herreshoff.

Mr. Spencer reviewed the precautions necessary in the determination of caffeine by both Gromberg's and the gravimetric method, and concludes that the Gromberg method gives the most satisfactory results, and admits of wider application than the gravimetric method, particularly as by the latter it is difficult to obtain absolutely pure caffeine.

Dr. Woodman gave the results of a series of factory tests on commercial red leads, taking the position that the litharge removed by digestion in solution of lead acetate is simply that portion which has escaped oxidation, and is therefore a diluent merely, and a measure of the incompleteness and imperfection of the roasting process. He finds no uniformity in the amounts of the uncombined or free litharge, either in the samples which are the subject of his paper or as reported by other analysts. According to his determinations the following variations are shown:

Red	1	5	B.W.L.	64	C.	L.B.	B.W.L.	L.B.
lead...	51.0	41.0	60.0	28.0	58.0	90.0	73.5	87.5
Free								
lith-								
arge...	49.0	59.0	40.0	72.0	42.0	10.0	26.5	12.5

For present purposes the few per cent. of impurities were not determined, and are included, some in the red lead figures, and others in the litharge.

Mr. J. B. F. Herreshoff made an address on 'Modern Metallurgy of Copper,' reviewing briefly the historical side of the development of the copper industry in this country and pointing out the remarkable increase in its consumption, due to the advance in the applications of electricity. While the iron industry

of this country is always spoken of as so enormous, and is indeed of great magnitude, it is only known to those who follow the subject very closely that the production of copper amounts to over one-half of the value of pig iron annually produced.

In 1895 the United States consumed 62.6 per cent. of its production, but in 1896 the home consumption was only about 37.5 per cent., 62.5 per cent. being exported. In the same time there was also a large increase in production.

Mr. Yocum reviewed the methods (and difficulties inherent in them) of determining tannin in barks and extracts. He considers a complete extraction of tannin at low temperatures as an impossibility, regardless of the amount of water used.

DURAND WOODMAN,  
*Secretary.*

#### THE ACADEMY OF SCIENCE OF ST. LOUIS.

At the meeting of the Academy of Science of St. Louis on the evening of January 18, 1897, Professor H. S. Pritchett presented some results of observations on the recent sun-spots, prefacing his remarks by a general account of our present knowledge of the constitution of the surface of the sun, and of sun-spots in general, and illustrating his remarks by the use of lantern slides.

Two persons were elected to active membership.

WM. TRELEASE,  
*Recording Secretary.*

#### NEW BOOKS.

*Problems and Questions in Physics.* CHARLES P. MATTHEWS and JOHN SHEARER. New York and London, The Macmillan Company. Pp. vii+247. \$1.60.

*The Mechanics of Pumping Machinery.* JULIUS WEISBACH and GUSTAV HERRMAN. Authorized translation from the second German Edition by KARL P. DAHLSTROM. London and New York, The Macmillan Company. 1897. Pp. 300.

*The Story of Extinct Civilizations.* ROBERT E. ANDERSON. New York, D. Appleton & Company. Pp. 213.